

**III. AMENDMENTS**

Please amend the claims as follows:

1. (Currently amended) A method for improving the performance of a golf club, comprising the steps of:

fabricating a golf club head having a face;

friction stir processing a predetermined metallic region~~area~~ of the surface of the golf club face, thereby creating a local fine grained microstructure in the region without significantly affecting the mechanical properties of other portions of the head; and

resurfacing at least the predetermined region~~area~~ subjected to friction stir processing so as to provide a desired surface topology.

2. (Original) The method of Claim 1, wherein the golf club head comprises a metal selected from the group consisting of aluminum, titanium, nickel, copper, iron, and alloys thereof.

3. (Original) The method of Claim 1, wherein said step of fabricating includes a step of casting or forging.

4. (Original) The method of Claim 1, wherein said step of friction stir processing is performed using a FSP tool rotating at a rate between 150 and 2000 rotations per minute.

5. (Original) The method of Claim 1, wherein said step of friction stir processing is performed using a FSP tool moved along the workpiece surface at a rate of 50 to 7000 mm/minute.

6. (Original) The method of Claim 1, wherein said step of resurfacing includes a step of milling.

7. (Original) The method of Claim 1, wherein the desired surface topology includes at least one groove.

8. (Currently amended) A method for improving the performance of a golf club, comprising the steps of:

friction stir processing a predetermined region~~area~~ of the surface of a metallic workpiece, thereby creating a local fine grained microstructure in the region without significantly affecting the mechanical properties of other portions of the workpiece; and fabricating a golf club head having a face which includes the predetermined region~~area~~.

9. (Original) The method of Claim 8, wherein the metallic workpiece comprises a metal selected from the group consisting of aluminum, titanium, nickel, copper, iron, and alloys thereof.

10. (Original) The method of Claim 8, wherein the metallic workpiece has a shape selected from the group consisting of strip, plate and block.

11. (Original) The method of Claim 8, wherein said step of fabricating includes a step of forging.

12. (Original) The method of Claim 8, wherein said step of friction stir processing is performed using a FSP tool rotating at a rate between 150 and 2000 rotations per minute.

13. (Original) The method of Claim 8, wherein said step of friction stir processing is performed using a FSP tool moved along the workpiece surface at a rate of 50 to 7000 mm/minute.

14. (Original) The method of Claim 8, further comprising the step of:  
resurfacing at least the predetermined area subjected to friction stir processing so as to provide a desired surface topology.

15. (Canceled) The method of Claim 14, wherein the step of resurfacing is performed before the step of fabricating.

16. (Canceled) The method of Claim 14, wherein the step of resurfacing is performed after the step of fabricating.

17. (Original) The method of Claim 14, wherein the desired surface topology includes at least one groove.

18. (Currently amended) A golf club head with improved performance, including a face having a surface for contacting a golf ball, wherein the improvement comprises: comprising a head with a face, said face comprising friction stir processed ~~metal-metallic~~ region of the face surface having, by virtue of the friction stir processing, a local fine grained microstructure whose mechanical properties are distinct from the mechanical properties of other portions of the head.

19. (Currently amended) The golf club head of Claim 18, wherein said friction stir processed ~~metal-metallic region~~ is selected from the group consisting of aluminum, titanium, nickel, copper, iron, and alloys thereof.

20. (New) The golf club head of Claim 18, wherein the friction stir processed metallic region is harder than the other portions of the head.

21. (New) The golf club head of Claim 18, wherein the friction stir processed metallic region exhibits fewer voids and defects than the other portions of the head.

22. (New) The golf club head of Claim 18, wherein the friction stir processed metallic region is more resistant to wear than the other portions of the head.

23. (New) The golf club head of Claim 18, wherein the friction stir processed metallic region is no more than 3 mm thick.

24. (New) The golf club head of Claim 18, wherein the friction stir processed metallic region is related to the sweet spot for the head.

25. (New) The golf club head of Claim 24, wherein the tendency for wear on the face to be reduced in the sweet spot, relative to other portions of the face, provides a long term indicator of a golfer's performance.